

Ground Enterprise Management System, Phase I

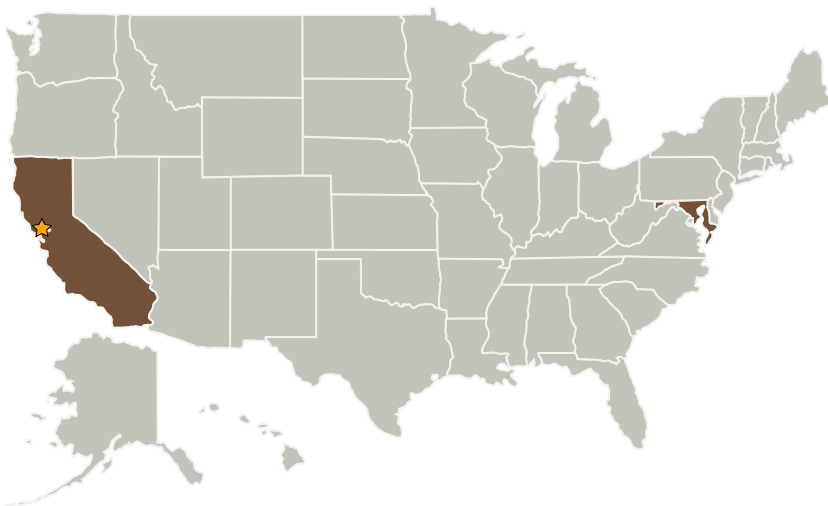
Completed Technology Project (2008 - 2008)



Project Introduction

Spacecraft ground systems are on the cusp of achieving "plug-and-play" capability, i.e., they are approaching the state in which the various components can be quickly integrated with near-automatic interoperability. When properly architected, such systems offer advantages over their traditional counterparts, such as improved upgradeability and extensibility. They can also be more easily automated and can provide better fault tolerance. These characteristics are important for all NASA spacecraft, from Exploration to Science. However, plug-and-play systems also pose some interesting challenges that can undermine their effectiveness. For example, they can be more complex in terms of information management and system administration. This is especially true when automation is used to reduce the workload of the operators. In fact, as the number of components increases, as much "situational awareness" of the ground system is needed the spacecraft. A software framework that supports plug-and-play integration, while also providing information management and system coordination, is required. Emergent Space Technologies Inc. therefore proposes to research and develop an Enterprise Management System for spacecraft ground systems. Called GEMS, it will provide spacecraft controllers and crew members with "situational awareness" of the current state of the ground system as well as understanding of how events and automated actions are affecting the system in real-time. The innovation lies in the development of algorithms and software adapters that gather data from the various components of the ground system to construct a data model that captures the system state and displays it to the controllers.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Emergent Space Technologies, Inc.	Supporting Organization	Industry	Greenbelt, Maryland

Primary U.S. Work Locations

California	Maryland
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Timothy C Esposito

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.4 Mission Success Technologies
 - └ TX13.4.2 Team Preparedness and Training